FCC 1.1310 Radiated Exposure Limits

The FCC Section 15.247(b)(4) requires compliance with the radiation exposure limits of paragraph 1.1307(b)(1).

Paragraph 1.1307(b)(1) references 1.1310 and 2.1093. Paragraph 2.1093 applies to portable devices, however the EUT is not portable. Paragraph 1.1307(b)(1) would seem to exclude devices certified under 15.247, other than in the general sense. This analysis will assume the worst-case general requirement as specified in paragraph 1.1310, Table 1.

The Maximum Permissible Exposure (MPE) at 2.4 GHz, based on Table 1 of paragraph 1.1310, occurs under part (b) for uncontrolled exposure. The MPE is 1.0 mW/cm^2 (61.4 V/m) for an averaging time of 30 minutes.

While it is unlikely that the EUT system would transmit continuously for 30 minutes (as it is a 2-way link), we will assume that it does as a worst-case scenario.

The EUT's strongest emission occurs with the Pacific Monolith antenna, which has a gain of 24 dBi. Applying the formula in paragraph 15.247(b)(3)(i), the maximum allowable EIRP is 47.6 dBm, which is equivalent to 13.85 V/m at 3 meters. (The actual measured power is somewhat less at 46.5 dBm, but this analysis will meet the allowable limit.

Using linear interpolation, the 61.4 V/m field strength might occur at a distance of about 27 inches from the reflector. But applying the Fraunhoffer Limit of $2D^2/\lambda$, the far field and coherent field pattern begins at a distance of 134 inches. Therefore it is not possible to see 61.4 V/m from this antenna.

The EUT is compliant with the Radiated Exposure Limits with no restrictions.